## CLAIMS

1. Method for automatic marking of liquids using encryption, the method including following steps:

- selecting at least two, preferably more markers, which are miscible in a liquid to be marked and which have characteristic spectral features for distinguishing them from the marked liquid without the need to extract said markers from the marked liquid, while characteristic features are marker's optical absorption spectra or fluorescence (excitation/emission) spectra must be clearly distinguished within at least one wavelength range, within which the absorption spectra or the fluorescence spectra (or both) of different markers are mutually different, and in addition to that they must differ from both the absorption spectrum or the fluorescence spectrum of the marked liquid itself and also from the absorption spectrum or the fluorescence spectrum of any other marker also used in this liquid.

- determining quantities of markers to be introduced into the marked liquid,
- introducing markers to the liquid to be marked, and
- determining concentration of each single marker and calculating mutual relationships between markers concentrations in marked liquid, and forming, on the bases of these data, for each marked liquid an unique identifying marking code characteristic only to this liquid volume,

whereby the method is **characterized** by the following steps:

- generating for each marker to be introduced into a liquid to be marked of a random number, the value of which determines the number of fixed volume portions of the marker to be introduced into the liquid to be marked,
- checking and if necessary adjusting the marking code immediately after the marking is completed, and
- encrypting the marking code identifying the marked liquid.

2. Method according to claim 1, **characterized** in that the markers are introduced into liquid to be marked automatically without human involvement.

3. Method according to claim 1, **characterized** in that the marking code used for marking of the next liquid volume can be selected different from the previous marking code.

4. Method according to claim 1, **characterized** in that after the marking is completed the marking code is checked on-site by marking station's marker reader in real time.

5. Method for identifying liquids marked by using a method according to claims 1 to 4, the method including the following steps:

- determining by optical absorption spectrum or fluorescence spectrum the specific spectral features of the markers used for marking of the liquid,
- determining, based on the optical absorption spectrum or intensity of fluorescence spectrum in respective spectral range, the actual concentration of every marker in the marked liquid,

whereby the method is **characterized** by following steps:

- inserting, upon receipt, the encrypted marking code identifying the marked liquid into the decrypting module,
- decrypting of the encrypted marking code, and as a result obtaining data on markers originally used for marking, on markers concentrations and mutual ratios of their concentrations.
- checking the measured concentrations and their mutual ratios correspondence to the values obtained by decrypting of encrypted marker code, and deciding whether the liquid is original or falsified.

6. Method according claim 5, characterized in that identification of the marked liquid is carried out automatically on-site and in real time.

AMENDED CLAIMS

[Received by the International Bureau on 27 July 2005 (27.07.2005 ): original claims 1-2 replaced by amended claims 1, claims 3-6 unchanged]

# CLAIMS

1. Method for automatic marking of liquids using encryption, the method including following steps:

- selecting at least two, preferably more markers, which are miscible in a liquid to be marked and which have characteristic spectral features for distinguishing them from the marked liquid without the need to extract said markers from the marked liquid, while characteristic features are marker's optical absorption spectra or fluorescence (excitation/emission) spectra must be clearly distinguished within at least one wavelength range, within which the absorption spectra or the fluorescence spectra (or both) of different markers are mutually different, and in addition to that they must differ from both the absorption spectrum or the fluorescence spectrum of the marked liquid itself and also from the absorption spectrum or the fluorescence spectrum of any other marker also used in this liquid,
- determining quantities of markers to be introduced into the marked liquid,
- introducing markers to the liquid to be marked, and
- determining concentration of each single marker and calculating mutual relationships between markers concentrations in marked liquid, and forming, on the bases of these data, for each marked liquid an unique identifying marking code characteristic only to this liquid volume,

whereby the method is **characterized** by the following steps:

- generating for each marker to be introduced into a liquid to be marked of a random number, the value of which determines the number of fixed volume portions of the marker to be introduced into the liquid to be marked,
- introducing markers into a liquid to be marked automatically without human involvement
- checking and if necessary adjusting the marking code immediately after the marking is completed, and
- encrypting the marking code identifying the marked liquid.

2. Method according to claim 1, **characterized** in that the marking code used for marking of the next liquid volume can be selected different from the previous marking code.

3. Method according to claim 1, **characterized** in that after the marking is completed the marking code is checked on-site by marking station's marker reader in real time.

4. Method for identifying liquids marked by using a method according to claims 1 to 3, the method including the following steps:

- determining by optical absorption spectrum or fluorescence spectrum the specific spectral features of the markers used for marking of the liquid,
- determining, based on the optical absorption spectrum or intensity of fluorescence spectrum in respective spectral range, the actual concentration of every marker in the marked liquid,

whereby the method is **characterized** by following steps:

- inserting, upon receipt, the encrypted marking code identifying the marked liquid into the decrypting module,
- decrypting of the encrypted marking code, and as a result obtaining data on markers originally used for marking, on markers concentrations and mutual ratios of their concentrations.
- checking the measured concentrations and their mutual ratios correspondence to the values obtained by decrypting of encrypted marker code, and deciding whether the liquid is original or falsified.

5. Method according claim 4, **characterized** in that identification of the marked liquid is carried out automatically on-site and in real time.